

**IN THE CLAIMS:**

Please substitute the following claims for the same numbered claims in the application.

Claims 1-8 (Canceled).

Claim 9 (Currently Amended): A semiconductor for use in a bipolar transistor, said semiconductor comprising:

carbon atoms; and

a doped region that comprises less than all of said semiconductor and comprises a dopant  
interacting with said carbon atoms,

wherein said carbon atoms limit outdiffusion of said dopant to physically limit a size of  
said doped region within said semiconductor, and wherein ~~and~~ said dopant is included in  
sufficient quantities to reduce a resistance of said semiconductor to less than approximately 4  
Kohms/cm<sup>2</sup>.

Claim 10 (Currently Amended): The semiconductor in claim 9, wherein said dopant is included  
in a peak concentration of approximately  $1 \times 10^{20}$  per cm<sup>3</sup> to  $1 \times 10^{21}$  per cm<sup>3</sup>.

Claim 11 (Original): The semiconductor in claim 9, wherein said dopant comprises one of  
boron, aluminum, gallium, indium, and titanium.

Claim 12 (Original): The semiconductor in claim 9, further comprising silicon germanium.

10/660,048

Claim 13 (Original): The semiconductor in claim 9, wherein said carbon atoms maintain said dopant within a central portion of said semiconductor.

Claims 14-19 (Canceled).

Claim 20 (New): A a bipolar transistor comprising:

a semiconductor layer comprising:

a single crystalline region;

a polycrystalline region adjacent said single crystalline region;

carbon atoms within said single crystalline region and said polycrystalline region;

and

a doped region in said single crystalline region adjacent said polycrystalline

region, wherein said doped region comprises a dopant interacting with said carbon atoms,

wherein said carbon atoms limit outdiffusion of said dopant such that a size of said doped region is physically limited within said semiconductor layer, and

wherein said dopant is included in sufficient quantities to reduce a resistance of said semiconductor and provide improved electrostatic discharge protection of said bipolar transistor.

Claim 21 (New): The bipolar transistor in claim 20, wherein said dopant is included in a peak concentration of approximately  $1 \times 10^{20}$  per  $\text{cm}^3$  to  $1 \times 10^{21}$  per  $\text{cm}^3$ .

Claim 22 (New): The bipolar transistor in claim 20, further comprising a collector below said

10/660,048

semiconductor layer, wherein said collector comprises another doped region adjacent said doped region in said semiconductor layer.

Claim 23 (New): The bipolar transistor in claim 20, further comprising a collector below said semiconductor layer, wherein said collector comprises a shallow trench isolation structure adjacent said polycrystalline region.

Claim 24 (New): The bipolar transistor in claim 20, further comprising an emitter contact and a base contact, wherein said carbon atoms maintain said dopant within a central portion of said semiconductor layer between said emitter contact and said base contact.

Claim 25 (New): The semiconductor in claim 20, wherein said carbon atoms reduce strain within said semiconductor layer.

Claim 27 (New): A bipolar transistor comprising:

a semiconductor layer comprising:

a single crystalline region;

a polycrystalline region adjacent said single crystalline region;

a doped region in said single crystalline region adjacent said polycrystalline

region; and,

carbon atoms within said single crystalline region and said polycrystalline region;

10/660,048

wherein said carbon atoms limit outdiffusion of said dopant such that a size of said doped region within said semiconductor layer is physically limited to increase speed and control breakdown voltage of said bipolar transistor.

Claim 28 (New): The bipolar transistor in claim 27, wherein said dopant is included in a peak concentration of approximately  $1 \times 10^{20}$  per  $\text{cm}^3$  to  $1 \times 10^{21}$  per  $\text{cm}^3$ .

Claim 29 (New): The bipolar transistor in claim 27, further comprising a collector below said semiconductor layer, wherein said collector comprises another doped region adjacent said doped region in said semiconductor layer.

Claim 30 (New): The bipolar transistor in claim 27, further comprising a collector below said semiconductor layer, wherein said collector comprises a shallow trench isolation structure adjacent said polycrystalline region.

Claim 31 (New): The bipolar transistor in claim 27, further comprising an emitter contact and a base contact, wherein said carbon atoms maintain said dopant within a central portion of said semiconductor layer between said emitter contact and said base contact.

Claim 32 (New): The semiconductor in claim 27, wherein said carbon atoms reduce strain within said semiconductor layer.

10/660,048